

APPENDIX A

Summary of Test Conditions

This appendix includes a table which summarizes the setup and conditions of the tests conducted.

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Scenario No.	Test No.	Source Description	Source Details	Source Elevation	Source Location ¹	Ignition Source	Igniter Location	Comments			
1	20	Propane Burner	Meker burner on side against marinite	1.5 m below the ceiling	Standard	match		For all propane burners, vents were approximately half open and were adjusted to maintain blue flames			
	21										
	22										
	23		Meker burner vertical								
	29		Bunsen burner vertical, flame spreader tip			butane flame		1.7 Lpm flowrate			
	63		Meker burner, horizontal, 13 cm flame								
	116		Bunsen burner, horizontal, 3 cm flame			butane flame					
2	12	Heptane Pool Fire	100 mL in 7.7 x 7.7 x 2.2 cm pan	1.5 m below the ceiling	Standard	match					
	24										
	25										
	26										
	41			2.4 m below the ceiling	1.8 m from North wall	butane flame					
	53					butane flame					
	145					match					
3	27	JP-5 Pool Fire	50 mL in 7.7 x 7.7 x 2.2 cm pan	1.5 m below the ceiling	Standard	propane torch					
	28		25 mL								
	30										
	31										
	32										
4	33	JP-8 Pool Fire	25 mL in 7.7 x 7.7 x 2.2 cm pan	1.5 m below the ceiling	Standard	propane torch					
	34										
5	35	Alcohol Pool Fire	50 mL in 7.7 x 7.7 x 2.2 cm pan	1.5 m below the ceiling	Standard	propane torch					
	36		100 ml								
	37		150 mL								
	38										

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Source Type	Test No.	Source Description	Source Details	Source Elevation	Source Location	Ignition Source	Igniter Location	Comments
6	15	Smoldering Mattress	15 x 15 x 11.4 cm sample with 1 bedspread, 1 blanket, and 2 sheets	1.5 m below the ceiling	Standard	300W glocoil (54.5 volts)	On top of mattress	
	16							
	17							
7	9	Flaming Mattress (Foam only)	15 x 6 x 11.4 cm	1.5 m below the ceiling	Standard	Horizontal Meker burner with wing tip, 13 cm flame	9 cm from mattress	
	10							
	13							
8	39	Flaming Mattress (Loose Bedding)	15 x 15 x 11.4 cm sample with 1 bedspread, 1 blanket, and 2 sheets. 8 cm blanket hanging loose in front of mattress	1.5 m below the ceiling	Standard	Horizontal Meker burner with wing tip, 13 cm flame	9 cm from mattress	
	40							
	66							
9	67	Flaming Mattress (Tucked Bedding)	15 x 15 x 11.4 cm sample with 1 bedspread, 1 blanket, and 2 sheets. Bedding completely surrounded mattress	1.5 m below the ceiling	Standard	Horizontal Bunsen burner with wing tip, 8 cm flame	1 cm from mattress	
	68							
	48							
10	49	Smoldering Pillow	24.5 x 32 cm pillow, 26 x 34 cm case, one short edge of case open	1.5 m below the ceiling	Standard	300 watt glocoil (54.5 volts)	On top of pillow	
	50							SO ₂ sensor not responding
	55							
	18							CO (mV) sensor not working
11	54	Laundry Pile	1 towel, 1 boxers, 1 briefs, 1 t-shirt	2.4 m below the ceiling	Standard	Horizontal Meker burner with wing tip	Exposed to waist band of boxer shorts for 20 seconds	Photoelectric malfunction
	57							SO ₂ sensor not responding, photoelectric malfunction

Source Type	Test No.	Source Description	Source Details	Source Elevation	Source Location	Ignition Source	Igniter Location	Comments	
12	99	Smoldering Electrical Cable	LSDSGU-14 (6 cables per bundle, center cable 33 cm long, others 20 cm long)	1.5 m below the ceiling	Standard	Welder initially at 340 A, increased to 600 A		Center cable charged	
	103		Welder initially at 500 A, reduced to						
	104		Welder initially at 340 A, increased to 550 A						
	100		Welder at 500 A						
13	101	Smoldering Electrical Cable	LSTPNW-1-1/2 (10 cables per bundle, all 33 cm long)	1.5 m below the ceiling	Standard	Welder initially at 340 A, decreased to 250 A		MIC re-calibrated, center cable charged	
	102								Center cable charged
	105								
14	106	Smoldering Electrical Cable	LSTPNW-1-1/2 (10 cables per bundle, all 33 cm long)	1.5 m below the ceiling	Standard	Welder at 250 A		Center cable charged	
	107								
	110								
15	111	Flaming Electrical Cable	LSDSGU-14 (6 cables per bundle, center cable 33 cm long, others 20 cm long)	1.5 m below the ceiling	Standard	propane torch		Center cable charged, cables heated ohmically by welder at 500 A	
	112								
	113								
	114								
16	115	Flaming Electrical Cable	LSTHOF-9 (6 cables per bundle, center cable 33 cm long, others 20 cm long)	1.5 m below the ceiling	Standard	propane torch		Center cable charged, cable heated ohmically by welder at 500 A	
	109								
17	109	Office Trash Can	LSDSGU-50 (1 cable per bundle)	2.4 m below the ceiling	Standard	20.3 cm match	Dropped in trash can	Fire grew too quickly, SO ₂ sensor not responding	
	58					cigarette (1 to 11 min.) then glocoil (55 V for 2 min., 94 V remaining)			
	59					10 crumpled paper towels, 10 crumpled sheets of paper, 5 flat sheets of paper, plastic trash bag			
	60								
	61								
18	62	Office Trash Can	10 crumpled paper towels, 10 crumpled sheets of paper, 5 flat sheets of paper, plastic trash bag	2.4 m below the ceiling	Standard	glo coil (94 volts)		SO ₂ sensor not responding	
	61								
19	62	Office Trash Can	10 crumpled paper towels, 10 crumpled sheets of paper, plastic trash bag	2.4 m below the ceiling	Standard	glo coil (94 volts)		SO ₂ sensor not responding	
	61								

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19	117	Pipe Insulation fire (NH Armaflex)	NH elastomeric foam, rewettable glass lagging, chlorinated Alkyd white paint, 20.3 cm long	1.5 m below the ceiling	Standard	Horizontal Bunsen burner with wing tip	On side of sample, <1 cm from insulation	MIC malfunction
	118							MIC malfunction
	119							MIC malfunction
	120							MIC malfunction, lagging was cut before test (i.e., sliced)
20	121	Pipe Insulation coated with oil fire (NH Armaflex)	NH elastomeric foam, rewettable glass lagging, chlorinated Alkyd white paint, soaked with lubricating oil, 20.3 cm long	1.5 m below the ceiling	Standard	Horizontal Bunsen burner with wing tip	On side of sample, <1 cm from insulation	Insulation coated in oil 4 days prior to test, MIC malfunction
	122							Insulation coated in oil 4 days prior to test
	123							
	127							
21	128	Pipe Insulation Fire (Calcium Silicate)	Calcium silicate Insulation with glass cloth lagging, painted, 20.3 cm long	1.5 m below the ceiling	Standard	Horizontal Bunsen burner with wing tip, 2.54 cm flame	On side of sample, <1 cm from insulation	
	129							
	124							
	125							
22	126	Pipe Insulation coated with oil fire (Calcium Silicate)	Calcium silicate Insulation with glass cloth lagging, painted, soaked with lubricating oil, 20.3 cm long	1.5 m below the ceiling	Standard	Horizontal Bunsen burner with wing tip, 2.54 cm flame	On side of sample, <1 cm from insulation	Insulation coated in oil 5 days prior to test
	14							
	46							
	47							
23	64	Polyimide Acoustic Insulation	Reiley Benton Insulation, 10 cm wide x 30 cm high	1.5 m below the ceiling	Standard	Horizontal Meker burner with wing tip, 13 cm flame	On side, 9 cm from insulation	
	11							
	19							
	42							
24	43	Nomex Honeycomb Wall Panel (TODCO)	Todco wallboard, 10 cm wide x 30 cm high	1.5 m below the ceiling	Standard	Meker burner with wing tip, 13 cm flame	On side, 9 cm from material	SO ₂ sensor not working
	44							
	45							
	65							Burners were horizontal
25	44	Nomex Honeycomb Wall Panel (Hexcel)	Hexcel panel, 10 cm wide x 30 cm high	1.5 m below the ceiling	Standard	Horizontal Bunsen burner with wing tip	On side, 1.5 cm from material	
	45							
	46							
	47							
26	65	Acoustical Insulation with out face material	Acoustical Insulation, 10 cm wide x 30 cm high	1.5 m below the ceiling	Standard	Bunsen Burner with wing tip, 2.54 cm flame	On side, 1 cm from material	SO ₂ sensor not working
	14							
	46							
	47							

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Source Type	Test No.	Source Description	Source Details	Source Elevation	Source Location	Ignition Source	Igniter Location	Comments
Nuisance 1	75	Burning Toast	Burning toast, 1 slice	1.5 m below the ceiling	Standard	Toaster		Toaster clamped in On position
	76							Toaster clamped in On position, UL 217 Ion sensor not working
	77							Toaster does not pop up automatically
2	73	Normal Toasting	Normal toasting, 8 slices at once, 8 slices total	1.5 m below the ceiling	Standard	Two toasters used simultaneously		Toasters automatically pop up
	80		Normal toasting, 8 slices at once, 24 slices total					
	81							
3	89	Welding	Welding, 0.32 cm thick steel plate with 7018 rod	2.4 m below the ceiling	Standard			Compartment door not completely closed, welding lead running through doorway
	90		Welding, 0.48 cm thick steel plate with 7018 rod					Door not completely closed, welding lead running through doorway, Ion malfunction
	91							Sensors did not significantly change when door was left open, Simplex photoelectric detector replaced
4	85	Cutting Steel with Acetylene Torch	Cutting steel with acetylene torch	2.4 m below the ceiling	Standard			
	87							
	88							
5	74	Grinding Steel	Continuously grinding steel	2.4 m below the ceiling	Standard			Milwaukee 4-1/2" Sander/Grinder
	82							
	83							
6	84	Grinding Cinder Block	Continuously grinding cinder block	2.4 m below the ceiling	Standard			Milwaukee 4-1/2" Sander/Grinder
	92							9 min of cutting
	93							3.5 min of cutting
7	94	Cutting Lauan	Cutting Lauan with circular saw	2.4 m below the ceiling	Standard			9 min of cutting, MIC sampling pump not turned on
	95							7.25 min. of cutting
	96							
8	97	Burning Popcorn in Microwave	Burning popcorn in microwave, 12 minutes cook time	1.5 m below the ceiling	Standard			
	98							

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Notes: 1. Standard source location was centered in the compartment, 1 m from the North-end wall.